

California Integrated Waste Management Board

Board Meeting

February 15-16, 2005

AGENDA ITEM 10 (Revised)

ITEM

Consideration Of Scope Of Work For Interagency Agreement With San Jose State University To Develop A Model For Use Of Currently Available Satellite Imagery To Locate Waste Tire Piles In California (Tire Recycling Management Fund, FY 2004/2005)

I. ISSUE/PROBLEM STATEMENT

This item proposes that the California Integrated Waste Management Board (Board) approve the Scope of Work (SOW) for the ~~Interagency~~ Agreement (IA) with ~~California State University San Jose~~ San Jose State University Foundation (CSUSF) (SJSUF) for Fiscal Year (FY) 2004/2005. Under this contract, Board staff will work with ~~CSUSJ~~ SJSUF to determine the feasibility of using currently existing satellite imagery to develop a program model to locate and monitor waste tire piles in California. Under this contract, ~~CSUSJ~~ SJSUF will determine if currently available satellite imagery can be used to locate new and monitor existing waste tire locations. As a result, there could be considerable saving of resources for Board and Waste Tire ~~Grantee~~ staff.

II. ITEM HISTORY

No Previous History.

III. OPTIONS FOR THE BOARD

1. Approve Resolution Number 2005-38 and the proposed Scope of Work for ~~Interagency~~ Agreement with ~~California State University San Jose~~ SJSUF to develop a Model for use of currently available Satellite Imagery to Locate Waste Tire Piles in California (Attachment 1).
2. Approve the Scope of Work with specified changes and approve Resolution Number 2005-38.
3. Direct staff to make changes to the proposed Scope of Work and return to the Board at a later date for further consideration.

IV. STAFF RECOMMENDATION

Staff recommends that the Board approve Option 1 and approve the proposed Scope of Work and Resolution 2005-38.

V. ANALYSIS

A. Key Issues and Findings

When the concept of using satellite imagery to locate and monitor waste tire piles is proven under this proposed contract, it should become an important tool in the Board's effort and ability to locate, monitor, and control illegal waste tire disposal. It will augment the program's existing ground surveillance, CHP checkpoints, and educational efforts in the enforcement program to control illegal waste tire disposal. This concept could be a great time-saving resource for Board staff and local waste tire personnel by providing more accurate location information and focusing our ground surveillance efforts.

Previously, the Board had been using an IA with the CHP to locate and log locations of suspected waste tire piles for the entire state. That method was successful to a point but offered challenges in providing a systematic method to cover that state and accurately log specific tire pile locations. Most of the work that was anticipated to be completed by the CHP on their waste tire pile location work has been completed. Now that the CHP Aerial team has covered most of the state, it continues to be a good resource for location-specific tasks associated with surveillance of known or suspected waste tire piles.

This item presents new methods of surveillance for consideration by the Board. The Board has previously approved aerial surveillance, through a CHP contract to identify illegal tire piles. The technology to be used for this concept has been proven in other environmental applications. When developed for a tire-specific program, this concept may be applied to assist the Board in its mandate to protect the public and environment and to improve resource allocation and safety for staff and waste tire grantees.

The use of satellite imagery will provide a new tool to enhance the Board's ability to locate and monitor new, developing, and existing waste tire piles. That ability to remotely locate and monitor waste tire locations in rural and urban locations will provide staff with an improved ability to locate and view waste tire locations without subjecting personnel to access concerns and potentially hazardous field conditions. Satellite imagery will also help staff to develop a legal basis, using proven technology to show the need to obtain site access when necessary for sites that would not have been otherwise accessible or have proven to be inaccessible.

Currently, satellite and aerial imagery are being used to view and map the state of California. This technology is currently being used by many private and governmental organizations in and outside of California to streamline operations, because it can provide relevant data for use in analysis and planning purposes. Some of the current governmental organizations using satellite data include, but are not limited to, Office of Emergency Services, CalTrans, California Department of Forestry, Resources Agency, and the State Water Resources Control Board. Local flood control districts and planning departments are also using this technology for planning, monitoring, and review purposes.

This SOW focuses on the use of Satellite Imagery because of the accuracy of the spectral data that can be produced on a statewide basis. Some aerial data may exist with spectral data capable of producing the desired results. However, it does not appear to be available state-wide with a consistency that would be usable for this pilot project. Therefore, part of this project will focus on determining the spectral needs for locating tire facilities which will in turn allow review of aerial photo capabilities.

B. Environmental Issues

This IA agreement should result in the implementation of new technologies, which will assist the Board in identifying and monitoring illegal tire piles throughout the state. Through these activities, Board staff will have another tool to assist in taking appropriate enforcement action against unlicensed tire haulers and the operators of illegal tire piles.

C. Program/Long Term Impacts

This contract concept, when proven, will provide the Board staff and local waste tire enforcement personnel with a tool to accurately locate and monitor waste tire piles in California. It is anticipated that this technology will significantly reduce the cost of staff time required to check remote areas or confirm reports of new or increasing waste tire piles. Once this technology is proven, waste tire locations determined by satellite imagery can be automated providing staff with more information in less time than would have been previously capable under the current method of waste tire pile location detection. This automation will allow staff to spend more time on known sites and less time eliminating incorrectly suspected waste tire disposal sites. Use of satellite imagery will also provide the added benefit of not only locating sites with considerable accuracy using a Global Positioning System (GPS) but will provide that location on a photo that shows a considerable amount of the surrounding area. Those photos showing enlarged areas will help orient field staff to determine the best and shortest possible route to the site, which will save time and resources.

This new tool will also allow staff to view a specific target area under question from the safety of an office. If a site is located using satellite imagery, the staff person will have specific information about the location and pile size prior to planning a site visit. Specific information about the location of waste tire piles will also allow staff to do a records check on past information and determine the owner of the site.

During the proposed project life, field studies will be conducted to confirm that satellite data obtained from currently available sources is accurate, up-to-date, and complete. There are some issues that will need to be worked out during this proof of concept stage such as confirming that information received from satellite imagery on tires is specific to only tires, eliminating possible mistakes by recognizing shadows as tire locations.

With earlier and more accurate detection of waste tire pile locations, staff will have the opportunity to significantly improve response time to confront those who illegally dispose of waste tires. For instance, if a location is identified, several dates of satellite imagery of a location can be checked and if there is a marked increase in tire disposal then surveillance can be used on the site to stop the hauler and mitigate the damage done to the environment. Once several of these incidents have occurred and haulers realize that they may be caught in a timely fashion there should be a reluctance to start or continue the illegal disposal of waste tires.

D. Stakeholder Impacts

Based on the available information, staff is not aware of any stakeholder impacts related to this item.

E. Fiscal Impacts

This will require the expenditure of \$30,000 from the Air Surveillance line item of the current Five-Year Waste Tire Management Plan (Tire Management Fund).

F. Legal Issues

Staff is aware of no legal issues regarding this item.

G. Environmental Justice

The enforcement of the statute and regulations pertaining to waste tire management are equally and uniformly applied to all applicable parties throughout the state of California regardless of income, population density, race or ethnic origin.

H. 2001 Strategic Plan

This item directly relates to the following goals and objectives of the Board's 2001 Strategic Plan:

Goal 4 – To manage and mitigate the impacts of solid waste on public health and safety and the environment and promote integrated and consistent permitting, inspection, and enforcement efforts.

Objective 1: Through consistent and effective enforcement or other appropriate measures, ensure compliance with federal and state waste management laws and regulations.

Objective 4: Intensify efforts to prevent illegal dumping and, where necessary, clean up illegally disposed waste and waste tire sites.

VI. FUNDING INFORMATION

1. Fund Source	2. Amount Available	3. Amount to Fund Item	4. Amount Remaining	5. Line Item
Tire Management Fund	\$ 200,000	\$ 30,000	\$ 170,000	Enhanced Enforcement and Air Surveillance

VII. ATTACHMENTS

1. Scope of Work
2. Resolution Number 2005-38

VIII. STAFF RESPONSIBLE FOR ITEM PREPARATION

A. Program Staff: Darryl L. Petker, P.E.

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B. Legal Staff: Holly Armstrong

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C. Administration Staff: Carol Baker

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IX. WRITTEN SUPPORT AND/OR OPPOSITION

A. Support

Staff had not received any written support at the time this item was submitted for publication.

B. Opposition

Staff had not received any written opposition at the time this item was submitted for publication.

California Integrated Waste Management Board

SCOPE OF WORK Revised

Agreement with San Jose State University Foundation To Develop A Model For Use Of Currently Available Satellite Imagery To Locate Waste Tire Piles In California

~~*Of Currently Available Satellite Imagery To Locate Waste Tire Piles In California*~~

I. INTRODUCTION/OBJECTIVES

The purpose of this ~~Interagency~~ Agreement (~~IA~~) is for the California Integrated Waste Management Board (Board) and San Jose State University Foundation (SJSUF) work to develop and confirm that waste tire piles can be located quickly and efficiently while reducing costs by using available satellite imagery in conjunction with available software. SJSUF will be working in coordination with resources available at NASA/Ames Research Center at Moffett Field, California.

The Waste Tire Enforcement staff has been using numerous methods to find and evaluate illegal waste tire disposal sites throughout the state. Those methods include CHP aerial surveillance; local contacts, such as waste tire grantees and code enforcement personnel; file and records checks; and follow-up on location tips. Additionally staff has used the methods of driving in areas of suspected illegal dumping to locate previously unknown locations or to monitor known locations.

Those past methods have provided staff with success and confirmation of numerous locations of illegal waste tire piles, but were resource intensive. New technology is available that shows promise for locating illegal waste tire piles in all areas of California. Satellite imagery is available in conjunction with processing techniques that could allow staff to remotely locate and monitor illegal waste tire piles. This technology could also help staff to locate suspected waste tire piles in remote sites where access is difficult to obtain. If proven, this technology could save considerable time and resources for the Waste Tire Enforcement Program over current methods. It is not suggested that the use of satellite imagery will replace all those methods of locating waste tire piles, but that it will serve as an additional tool in the arsenal to control and eliminate illegal disposal. This technology is currently being used by many organizations and agencies to remotely monitor urban development, flood control, forestation issues, seismic issues, and intrusive non-native plant growth.

This proposal shall focus on two specific areas of California. The first will be an area in Sonoma County, which has numerous waste tire piles of varying sizes. This area and terrain is chosen because it represents an environment similar to many areas throughout the state which have been used for the illegal disposal of waste tires. The second area will be in the southern part of the state, where there are numerous waste tire piles. The contractor will be given many of the known waste tire pile locations in the specified areas and a few will remain known only to

the Board Staff. This will assure the Board staff that the contractor can locate known sites and find sites not originally known to them.

As a final test for viability of the technology, the contractor will be given a small area with several known sites that they will have to find and list by size and location.

Additionally, if viable, this technology will help with locating illegal tire piles. Controlling and monitoring of waste tire piles should help in the elimination of potential areas where mosquitoes and West Nile virus may develop.

Once proven, this technology can be shared with local waste tire grantees in their efforts to control the illegal disposal of waste tires.

II. WORK TO BE PERFORMED

1. Board Staff and SJSUF will work together to ensure that the basic information exchanged and requested is reasonable in accordance with currently available technology. This work will include identifying and working in a cooperative effort with other Federal, State, or Local Agencies that have done research into using satellite imagery to locate waste tire piles.
2. SJSUF will obtain satellite imagery from public and/or private sources for specific areas of California, which will be provided to SJSUF by the Board Contract Manager.
3. Perform both office and field work to correlate satellite image data with ground information (data). Board Staff should be advised of and, if appropriate, be present during field work. The decision as to whether it is appropriate for Board staff to be present during field work shall be made by the Board ~~Grant~~ Contract Manager. Field work will be that work performed by the contractor and Board staff to locate waste tire locations and gather appropriate ground information.
4. Use image processing technology to identify and accurately locate waste tire piles of 100 or more tires in several types of terrain. That data will be spectral data from satellite or aerial imagery. Those terrains should include both a hilly and shady terrain such as Sonoma County, as well as open desert environments such as the high desert in Los Angeles and San Bernardino Counties. Board will provide SJSUF staff with specific locations where field work for this contract is to be performed.
5. Determine cost to apply the technology to a specific new area for waste tires or monitor a currently known site(s).

III. TASKS IDENTIFIED

The following tasks shall be performed:

Task 1. Develop Project Plan

Working with the Board Contract Manager, develop a written plan containing a description, outline, and timeline clearly indicating how this project, including completion of the deliverables, will be accomplished. This project description and outline will include the types of software programs to be used, source and type of imagery, and personnel to accomplish the work to be performed as stated above. This report should be given in draft form to the Board Contract Manager for review prior to formal submittal. Results must be submitted in a form that will be compatible with current Board systems.

Deliverables: Report on project development, description, outline, and timeline.

Completion Deadline: April 1, 2005

Task 2. Image Processing Methodology

Obtain and use satellite imagery that is currently available from either public or private sources to develop image processing methodology that may be used now and in the future to locate legal and illegal waste tire piles in excess of 100 tires or approximately 250 square feet of surface area. The methodology will allow future searches for tires from a specific area located by geographic coordinates in a form acceptable to the Board. For purposes of this ~~IA~~ agreement, only limited areas will be used to test the methodology; however, the program will be designed to be used on any area of California.

Field work needed to accurately calibrate the image processing methods will be accomplished in the presence of or with overview of Board staff or a designated waste tire grantee.

Deliverables: Report on the status of the work done for Task #2.

Completion Deadline: June 1, 2005

Task 3. Prepare and deliver three demonstrations

Prepare and deliver three demonstrations of the effectiveness of the model developed. The three demonstrations will be for the following purposes and will be held at the Offices of the Board in Sacramento, California, unless otherwise agreed. The first presentation will be to work with Board staff to preview the presentation to the Special Waste Committee or other appropriate state official. The second meeting will be for a presentation to the Special Waste Committee at a public meeting at a date acceptable to the Committee or to the appropriate state official at either a public or private meeting. The third presentation will be to the Board at a public meeting or to the appropriate state official at either a public or private meeting upon completion of the Project.

Deliverables: Three Presentations (two of which may be in a public setting)

Completion Deadline: July 1, 2005

Task 4. Final Report

Final report – SJSUF will provide the Board with ten copies of the Final Report, nine of which may be on CD's; at least one copy must be a hard copy, printed on paper with the appropriate percentage of recycled content. Appropriate images, photos, findings should be included.

The final report shall include a description of the work performed, results of the modeling effort, list of tire piles located, and a recommendation about the feasibility of this project to work on an ongoing basis. The report should also include an estimated cost breakdown for further use of this model on an as-need basis.

Deliverables: Approved Final Report

Completion Deadline: August 15, 2005

Task Cost Breakdown. The following sums will be paid upon approval of work performed for each task.

Task #	Task Title	Completion Date	Cost
#1	Develop Project Plan	April 1, 2005	\$ 3000.00
#2	Field Work and Model Development	June 1, 2005	\$20,000.00
#3	Presentations	August 15, 2005	\$ 3000.00
#4	Final Report	August 15, 2005	\$ 4000.00

IV. CONTRACT/TASK TIME FRAME

The timeframe on this contract will vary depending on weather and field conditions. It is expected that the work will be completed no later than September 30, 2005.

V. COPYRIGHT PROVISION

Contractor shall establish for the Board good title in all copyrightable and trademarkable materials developed as a result of this Scope of Work. Such title shall include exclusive copyrights and trademarks in the name of the State of California, California Integrated Waste Management Board.

VI. CALIFORNIA WASTE TIRES

Unless otherwise provided for in this Scope of Work, in the event the Contractor and/or Subcontractor(s) purchases waste tires or waste-tire derived products for the performance of this Scope of Work, only California waste tires and California waste tire-derived products shall be used. As a condition of payment under the Agreement, the Contractor shall be required to provide documentation substantiating the source of the tire materials used during the performance of this Scope of Work to the Contract Manager.

VII. WASTE REDUCTION AND RECYCLED-CONTENT PRODUCT PROCUREMENT

In the performance of this Agreement, Contractor shall use recycled content, used or reusable products, and practice other waste reduction measures where feasible and appropriate.

Recycled Content Products: All products purchased and charged/billed to the Board to fulfill the requirements of this contract shall be Recycled Content Products (RCPs), or used (reused, remanufactured, refurbished) products. All RCPs purchased or charged/billed to the Board to fulfill the requirements of the contract shall have both the total recycled-content (TRC) and the post consumer content (PC) clearly identified on the products. Specific requirements for the aforementioned purchases and identification are discussed in the Terms and Conditions of the Contractual Agreement under Recycled-Content Product Purchasing and Certification.

The Contractor should, at a minimum, ensure that the following issues are addressed, as applicable to the services provided:

A. WRITTEN DOCUMENT PROVISION

All documents and/or reports drafted for publication by or for the Board in accordance with this contract shall adhere to the Board's *Guidelines For Preparing CIWMB Reports (available upon request)* and shall be reviewed by the Board's Contract Manager in consultation with one of the Board's editors.

In addition, these documents and/or reports shall be printed double-sided on paper with one hundred percent (100%) recycled content (unless 100% recycled-content is not appropriate, such as where many full color photographs will be used, then paper with a minimum of 50% recycled content may be used.) The paper should identify the post consumer recycled content of the paper (i.e., "printed on 100% post consumer paper"). When applicable, the Contractor shall provide the Contract Manager with an electronic copy of the document and/or report for the Board's uses.

To the greatest extent possible, soy ink instead of petroleum-based inks should be used to print all documents.

B. CONFERENCING PROVISION

The Contractor shall take any and all steps necessary to make sure that the Event is a model for future recycling, waste prevention, diversion, buy recycled, and waste management events.

Paper Products: All paper products used to fulfill the requirements of this contract (nametags, badges, letters, envelopes, brochures, etc) must contain at least 30% post-consumer recycled content fiber.

Re-usable Cups, Plates & Utensils: To the greatest extent possible, use re-usable/washable utensils, dishes, tableware, etc. rather than single-use disposable products.

Leftover Food/Beverages: All leftover food and/or beverages associated with the event will be donated to an established food donation outlet. Arrangements for the donation must be made prior to the date of the event. Board staff will assist the contractor in identifying these donation outlets, if needed.

Recycling/Composting: Arrangements must be made with the venue, sponsor, or by contract, to provide adequate collection bins for recyclables, organics (food waste) or biodegradable materials, and trash (non-recyclables). The bins should contain at least 30% post-consumer plastic. In addition, the contractor shall work with the venue and/or sponsors to maximize diversion of the discarded materials.

Soy-based Printing Ink: To the greatest extent possible, soy ink instead of petroleum-based inks should be used to print all documents needed for the event.

CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD

Resolution 2005-38 (Revised)

Consideration Of Scope Of Work For Interagency Agreement With San Jose State University To Develop A Model For Use With Currently Available Satellite Imagery To Locate Waste Tire Piles In California (Tire Recycling Management Fund, FY 2004/2005)

WHEREAS, the State of California generates more than 31 million waste tires annually and 20 million of these tires are diverted from stockpiling or disposal in landfills; and

WHEREAS, Public Resource Code (PRC) 42800 *et seq.* established the Waste Tire Program for the State of California and assigned responsibility to the California Integrated Waste Management Board (Board); and

WHEREAS, Senate Bill 876 (Escutia, Statutes 2000, Chapter 838) is a comprehensive measure that extended and expanded California's regulatory program related to the management of waste and used tires and requires the adoption of a comprehensive Five-Year Plan for the allocation of tire program funds and the management of waste tires in California; and

WHEREAS, The *Five-Year Plan for the Waste Tire Recycling Management Program*, (2nd edition covering 2003/2004 through 2008/2009), allocates \$200,000 for An Enhanced Enforcement and Aerial Surveillance Waste Tire Compliance Program.

NOW, THEREFORE, BE IT RESOLVED that the Board approves the Scope of Work and an ~~Interagency Agreement with California State University~~ San Jose State University Foundation, for FY 2004/2005 in the amount of \$30,000 and directs the Executive Director to enter into an ~~Interagency Agreement with California State University~~ San Jose State University Foundation.

CERTIFICATION

The undersigned Executive Director, or his designee, of the California Integrated Waste Management Board does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the California Integrated Waste Management Board held on February 15-16, 2005.

Dated:

Mark Leary
Executive Director